

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method of preparation of a liquid electrostatographic toner or liquid ink jet ink, the method including the steps of,
 - 5 a) preparing a resin system comprising a resin or resins with optionally a colourant and coarse grinding the resin system,
 - b) milling the coarse ground resin system with a carrier liquid to produce a liquid marking particle mix,
 - c) heating the liquid marking particle mix to a temperature about or greater than
10 the first softening point of the resin system of the marking particle mix,
 - d) maintaining the temperature of the heated marking particle mix for a selected period of time,
 - e) cooling the marking particle mix to room temperature, and
 - f) mixing the marking particle mix with high shear.
- 15 2. A method as in Claim 1 wherein the marking particle mix is heated to a temperature of from greater than about the first softening point of the resin system to less than about the second softening point of the resin system.
- 20 3. A method as in Claim 1 wherein the selected period of time is from several minutes to several days depending upon the type of heating applied and the method of applying that heat.
4. A method as in Claim 1 wherein the heating is provided by convection, such
25 as in an oven, conduction or radiation, such as microwave radiation.
5. A method as in Claim 1 wherein the resin system optionally comprises a plasticiser.

6 A method as in Claim 5 wherein the plasticiser is selected from the group comprising sulfonamides, adipates, sebacates and phthalates.

7 A method as in Claim 5 wherein the resin system comprises:

5 0 to 60 percent of colourant,
0 to 20 percent of plasticisers, and
resin or resins to 100 percent.

8. A method as in Claim 1 wherein the step of milling the resin system includes
10 milling with additives selected from one or both of the group comprising charge control agents and dispersion agents.

9. A method as in Claim 1 wherein the resin is selected from one or more of the group comprising ethyl cellulose, oil modified alkyd resin, acrylic ester resin,
15 methacrylic ester resin, polystyrene, silicone-acryl copolymer, silicone resin, silicone-(meth)acryl copolymer, block polymer or graft polymer, polyolefin copolymer, poly(vinyl chloride) resin, chlorinated polypropylene, polyamide resin, coumarone-indene resin, rosin-modified resin, alkylphenol-modified xylene resin, synthetic polyesters; polypropylene or modified polypropylene; alkylated poly vinyl
20 pyrrolidones; natural waxes, montan wax, candelilla wax, sugar cane wax, beeswax; natural resins, ester gum and hardened rosin; natural-resin-modified cured resins, natural resin-modified maleic acid resins, natural resin-modified phenol resins, natural resin-modified polyester resins, natural resin-modified pentaerythritol resins and epoxy resins.

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10. A method as in Claim 1 wherein the colourant is selected from one or more of inorganic pigments selected from carbon blacks, silica, alumina, titanium dioxide, magnetic iron oxide, or organic pigments selected from phthalocyanine blue, alkali and reflex blue, phthalocyanine green, diarylide yellow, arylamide yellow, azo and

diazo yellow, azo red, rubine toner, quinacridone red, basic dye complexes, lake red, or fluorescent pigments and dyestuffs selected from basic dyes and spirit soluble dyes or combinations thereof.

5 11 A method as in Claim 7 wherein the colourant is present in the range of about 1 to about 60 percent by weight of the toner or ink.

12. A method as in Claim 1 wherein the carrier liquid is selected from the group comprising isoparaffinic-hydrocarbons, silicone fluids of straight chained
10 configuration, silicone fluids of cyclic configuration, silicone fluid of branched configuration, vegetable oils, synthetic oils or polybutenes or blends thereof.

13. A method as in Claim 8 wherein the charge control agent is selected from the group comprising metallic soaps, fatty acids, lecithin, organic phosphorus
15 compounds, succinimides and sulphosuccinates.

14 A method as in Claim 8 wherein the charge control agent is present in the range of 0.01 to 5 percent by weight of the toner or ink when used.

20 15. A method as in Claim 8 wherein the dispersion agent is selected from the group comprising polymeric hyperdispersants, amino-silicones, polymeric petroleum additives, polymeric oil additives and multi-functional pigment dispersing agents.

25 16. A method as in Claim 8 wherein the dispersion agent is present in the range of about 0.1 to about 20 percent by weight of the toner when used.

17. A method of preparation of a liquid electrostatographic toner or liquid ink jet ink, the method including the steps of,

- a) heating a marking particle mix including a carrier liquid and a resin which is insoluble in the carrier liquid to a temperature at or about the first softening point of the resin of the marking particle mix,
- b) maintaining the temperature of the heated marking particle mix for a selected
5 period of time,
- c) cooling the marking particle mix to room temperature, and
- d) mixing the marking particle mix with high shear.

18. A method as in Claim 17 wherein the marking particle mix is heated to a
10 temperature of from greater than about the first softening point of the resin to less than about the second softening point of the resin.

19. A method as in Claim 17 wherein the selected period of time is from several minutes to several days depending upon the type of heating applied and the method
15 of applying that heat.

20. A method as in Claim 16 wherein the heating is provided by convection, such as in an oven, conduction or radiation, such as microwave radiation.

20 21. A liquid electrostatographic toner or liquid ink jet ink prepared by the method of any one of claims 1 to 10.

22. A liquid electrostatographic toner or liquid ink jet ink as in Claim 21 where the toner or ink comprises:

- 25 1 to 60 percent marking particle mix by weight,
- 0 to 5 percent charge control agent,
- 0 to 20 percent dispersion agent, and
- carrier liquid to 100 percent.

23. A method of preparation of a liquid electrostatographic toner or liquid ink jet ink including the steps of heating a marking particle mix of particles of a resin and a colourant blend in a carrier liquid to a temperature between about the first softening point of the resin to less than about the second softening point of the resin,

5 maintaining the temperature of the heated marking particle mix for a selected period of time, cooling the marking particle mix to room temperature, and mixing the marking particle mix with high shear.

24. A method of improving the rheology of a liquid electrostatographic toner or liquid ink jet ink including the steps of heating a marking particle mix of particles of a resin and a colourant blend in a carrier liquid to a temperature between about the first softening point of the resin to less than about the second softening point of the resin, maintaining the temperature of the heated marking particle mix for a selected period of time, cooling the marking particle mix to room temperature, and mixing

15 the marking particle mix with high shear.

25. A method of improving the physical and electrical properties of a liquid electrostatographic toner, the toner comprising particles of a resin and a colourant in a carrier liquid, the method including the steps of heating the toner to a temperature between about the first softening point of the resin to less than about the second softening point of the resin, maintaining the temperature of the toner for a selected period of time, cooling the toner to room temperature, and mixing the toner with high shear.

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